Peter, (R)

ART. VII.—*A Summary of Meteorological Observations, made during the latter six months of the year* 1836; *in the City of Lexington, Ky.* By ROBERT PETER, M. D. &c.

(Reported to the College of Physicians and Surgeons.)

The observations, of which the following are the results, were made at three several periods of the day; namely, at about 7 A. M., at about 1 P. M., and at about 9 P. M., with the barometer and the thermometer, and as soon as possible after the fall of rain or snow, with the rain-guage.

The barometer which I used, is suspended in the second story of the house, in a somewhat elevated part of the city. The tube of this instrument was filled and adjusted by myself, with as much accuracy as possible. In filling it the mercury was introduced into it boiling hot, and was then boiled in the tube by means of an inclined charcoal fire. To prevent the passage of air between the surface of the glass and the mercury, I adjusted, by means of the table blow-pipe, a piece of platinum foil, so that it coated the lower end of the bore of the tube, which by its affinity for the quicksilver, completely prevents the passage of the bubbles up the column; a circumstance which has been known to occur when no such precaution was taken. In taking an observation with the barometer, I always made the column of mercury to oscillate, by means of the screw of the reservoir, in order to obviate, as far as possible, the effects of the adhesion between the metal and the tube.

The thermometer which I employed, is one of the common construction. It is placed against a brick wall with a N. E. exposure, far from the influence of fires, and protected from the sun under the shelter of an open porch. It is completely exposed to N. W. or S. E. currents and scarcely at all protected from the wind on the S. W. side. The rain-guage, which was used has already been described in a former meteorological notice, as well as its locality.

BAROMETER.—*The mean height of the mercury in July*, 1836, in inches was

	At 7 A. M.	At 1 P. M.	At 9 P. M.	Mean height for the month.
	29,07	28,84	29,03 - - -	28,98
In August	29,08	28,73	29,08 - - -	28,96
" Sept.	29,11	29,08	29,09 - - -	29,09
" Oct.	29,08	29,05	29,06 - - -	29,06
" Nov.	28,94	28,69	28,77 - - -	28,80
" Dec.	29,12	29,00	29,10 - - -	29,07
Mean height of the barometer during the six months:				
	29,06	28,89	29,02 - - -	28,99

The fact of the existence of a regular *diurnal* variation of the barometer is fully shown in these results. It will be seen that in the mean of the whole number of observations the mercury stands highest in the morning, next in height in the evening, and lowest in the middle of the day.

The maximum height of the mercury of the barometer,

In July was	29,30	inches,	on the morning of the	29th.
" August "	29,20	"	"	7th.
" Sept. "	29,28	"	"	14th.
" Oct. "	29,29	"	"	22d.
" Nov. "	29,31	"	"	18th.
" Dec. "	29,44	"	"	22d.

The minimum height,

In July was	28,86	inches,	on the morning of the	22d.
" Aug. "	28,90	"	at 1 o'clock, P. M.	18th.
" Sept. "	28,77	"	"	28th.
" Oct. "	28,66	"	on the evening of the	15th.
" Nov. "	28,52	"	at 1 o'clock, P. M.	11th.
" Dec. "	28,45	"	"	13th.

General remarks on the indications of the barometer.

This instrument is vulgarly called the "weather-glass," from the opinion that from the motions of the mercury in its tube pretty correct predictions of the weather might be made; and in this view the face of the barometer-scale has, almost always, engraven on it, the words "fair weather," "rain," "stormy," &c. Its utility as a "*weather-glass*," however, is much less than is commonly believed; and the engraving of the words which usually ornament its face, is a sheer loss of time; for

very rarely;—never indeed in places of the altitude of Lexington above the level of the sea,—does the real indication given by the height of the mercury, agree with that engraved on the plate, opposite to that height. Rain falls when the mercury is high, as well as when it is low in the tube; and wind occurs also when it is in both of these conditions; yet its indications are not entirely devoid of value. Rain and wind are generally preceded by a falling of the mercury; and the ascent of the metal usually accompanies the return of fair weather. A short time before storms of wind and rain, it sometimes falls with great rapidity, and often to a considerable distance; and it generally rises, as rapidly again, when the storm is subsiding. But it sometimes, although rarely, happens, that the barometer is, as it were, taken by surprise, and gives no indication of the approaching storm.

RAIN fell, in July, 1836, on twelve days:—on the 1st, 3d, 5th, 7th, 8th, 9th, 21st, 24th, 25th, 26th, 29th and 30th.

The whole amount of rain, in this month, was 2,49 inches.

In August it fell on thirteen days;—the 1st, 3d, 5th, 6th, 8th, 9th, 14th, 18th, 23d, 25th, 26th, 29th. The whole amount was 5,14 "

In September it fell on sixteen days;—the 4th, 5th, 9th, 10th, 11th, 13th, 14th, 15th, 16th, 18th, 19th, 20th, 21st, night of the 23d, on the 27th, and the 29th. The whole amount was 3,57 "

In October it fell on eleven days;—the 2d, 3d, 6th, 7th, 13th, 14th, 15th, 16th, 24th, 25th, and 30th. Snow fell on the night of the 3d, on the 4th and on the night of the 19th; and a little hail on the morning of the 18th. The whole amount ofwater was 1,93 "

In November it fell on seven days;—the 6th, 10th, 11th, 15th, 19th, 20th and 21st, and snow fell on three days, the 22d, 27th, and 28th. The whole amount of water in this month was 2,36 "

In December rain fell on nine days,—the night of the 3rd, on the 9th, 11th, 13th, 16th, 20th, 24th, 25th, and 31st, and snow on four days; the 14th, 16th, 17th, and 25th. The whole amount of water was 3,13 inches.

During the whole six months, rain fell on sixty-eight days; snow on ten days, and hail on one day, and the whole amount of water which fell from the atmosphere was 18,62 inches.

THUNDER-STORMS occurred, in July, on the 1st., on the night of 8th, on the morning of the 9th, on the evening of the 24th, and on the afternoon of the 25th.

In August;—on the night of the 3rd, and the afternoon of the 14th. (In this month there were but nine clear days.)

In September;—on the afternoon of the 5th, on the night of the 13th; on the afternoon of the 15th and 19th.

In October, November and December, I have no record of the occurrence of thunder.

Of the indications of the *Thermometer* I have no records for the first of the six months in question, viz: July; in consequence of my not being possessed of an instrument of a proper kind at that time. Of the other five months I possess observations, the results of which will now be given.

The mean temperature of August, 1836, (Fahrenheit thermometer,) was

	At 7 A. M.	At 1 P. M.	At 9 P. M.	Mean of the month.
	75,80°	81,58°	78,96°	78,78°
In Sept.	68,23	79,73	69,96	72,64
" Oct.	44,90	57,90	46,96	49,92
" Nov.	35,90	48,06	37,48	40,48
" Dec.	28,83	39,67	30,83	33,11
The mean of the whole six months is				
	50,73	61,37	52,84	52,98

The maximum height of the thermometer;

In August, was 92° on the 1st at 1 P. M.
" Sept. " 92° " 15th. "
" Oct. " 77° " 1st. "
" Nov. " 69° " 11th. "
" Dec. " 66° " 11th. "

The minimum temperature;

In August was 59° on the mornings of the 21st and the 31st.
" Sept. " 54° " morning of the 28th.
" Oct. " 28° " " 21st.
" Nov. " 18° " of the 25th, and evening of the 28th.
" Dec. " 10° " evening of the 22d.

It will be seen, that at no period during the winter months of 1836, did the mercury in the thermometer fall to zero. We experienced, however, some sudden and remarkable changes of temperature;—the most remarkable of which, perhaps, was that which occurred in December. In this month, the thermometer indicated 50° on the evening of the 20th; was down to 19° on the next morning, and as low as 10° on the evening of that day; showing a change of 40° in twenty-four hours.

The first *white frost* was noticed on the morning of the 3d of November;

The first *hard-frost*, on the night of the 19th of that month, continuing during the nights of the 20th and the 21st.

The following observations were made about the time of the *Equinox*, in September;

On the 17th, in the afternoon, Bar. 29,06 inches. Wind W. atmosphere clear.

On the 18th, morning, bar. 29,06. Clouds from S. W. At 1 P. M., bar. 29,03; a shower; another at 4 P. M. At night, bar. at 29,05. The mercury in the barometer continued to rise until, on the morning of the 21st, it stood at 29,16. At 1 P. M., same day, it was at 29,11; at night at 29,14, on next morning, the 22d, it was at 29,15 inches.

On the 19th, morning, clouds passing from S. W., afternoon thunder; sprinkled, shower at 6 P. M. Clear at 8 P. M.

On the 20th, wind S. W. Rain at 7½ P. M., and nearly all day; one inch falling during the course of the day. The clouds moving, the upper and lower ones often in opposite directions, S. W.—N. W.—S.—W.—S. E. and S. W.

On the 21st, cloudy in morning. Shower at 11, A. M.

" 22d, some clouds in morning. Clear.

The remarkable appearances of the atmosphere, characterizing what is denominated "*Indian summer*," were very evident for four days, in the early part of November. These appearances are, as is well known, a very smoky, or hazy state of the air; which in some cases even affects the eyes like wood-smoke; and a consequent red appearance of the sun as seen through the smoky atmosphere. The weather is generally moderate during the Indian summer.

Indian summer, in 1836, commenced on the second day after the first white frost; namely on the 6th of November, and it lasted for four days. There was a little rain on the night of the first day; and this hazy state of the atmosphere was broken up, on the 10th, by heavy rains, which continued during the 11th, and the day and the night of the 12th; accompanied with high winds, which blew first from the S. E, and finally from the N. W., bringing a sensible reduction of temperature.

These then are the results of the observations which I have been able to make during the specified period. That they are very imperfect must be acknowledged; but that they furnish a record of some facts which may be of value to the medical, or general philosopher, is confidently believed. Hence I am emboldened to submit them to your honorable body. Meteorological tables and statistics, presenting a repulsive mass of figures, are as uninviting to the general reader, as they are troublesome in their preparation;—but to the scientific observer, arduous in the pursuit of the true "causes of things," they are records of interesting and unalterable truths. Like many other things, their value is not felt except in their absence. During years, for example, in which no unusual appearance of disease presents itself; what physician cares for the dull tables of the plodding meteorologist? But who is there among us that does not regret, that we have no definite records of the state of the weather, during the time of the late terrific attack of epidemic cholera!